

ABSTRACT

A method of manufacturing a SONOS flash memory device is disclosed. The disclosed method comprises the steps of forming a lower oxide layer, a tunnel nitride layer, a sacrificial oxide layer, and an insulating layer for a hard mask in sequence on a semiconductor substrate; removing a portion of the insulating layer by an etching process; forming spacers on sidewalls of the insulating layer etched; removing some part of the sacrificial oxide layer and the tunnel nitride layer by an etching process using the insulating layer and the spacers as a mask; removing the insulating layer, the spacers, and the sacrificial oxide layer; removing a portion of the lower oxide layer by an etching process using the tunnel nitride layer etched as a mask; depositing an upper oxide layer and a polysilicon layer in sequence over the resulting structure; and forming a gate having two separate tunnel nitride layer parts by removing some parts of the polysilicon layer, the upper oxide layer, and the tunnel nitride layer in sequence by an etching process. By separating the tunnel nitride layer into two parts, movement of electrons captured in the tunnel nitride layer can be completely prevented. Therefore, the present invention can obviate device malfunction, thereby ensuring device characteristics and reliability.